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## Naval Hospital Bremerton Nuclear Medicine unveils New Equipment

BY VJOHNSON – APRIL 24, 2014

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Capt. Christopher Quarles, Naval Hospital Bremerton Commanding Officer is joined by Radiology Department staff and Nuclear Medicine technicians for the official ribbon-cutting on April 17 to unveil Nuclear Medicine's new state-of-the-art imaging technology that combined single photon emission computer tomography (SPECT) and computer tomography (CT) and an independent fully diagnostic CT scanner to enhance patient centered care by being able to digitally superimpose nuclear medicine and CT images to allow for precise anatomic localization of disease processes (Photo by Douglas H Stutz, Naval Hospital Bremerton Public Affairs).

Naval Hospital Bremerton's Nuclear Medicine Clinic officially reopened with a ribbon-cutting ceremony on April 17 unveiling state-of-the-art medical imaging technology.

The clinic has been completely upgraded with a combination single photon emission computed tomography (SPECT) and computed tomography (CT) unit that not only replaces the clinic's gamma camera but adds an independent fully diagnostic CT scanner to the hospital's medical imaging armamentarium.



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"This new piece of equipment will completely enhance patient-centered care," said Lt. Cmdr. Jessie Puryear, NHB Radiation/Laser Safety Officer, Radiation Health Officer and Radiology Division Officer.

The new hybrid SPECT/CT scanner combines nuclear medicine and radiology imaging technologies on a single scanner. The resulting multipurpose scanner can perform traditional nuclear medicine examinations previously performed by the clinic's gamma camera in addition to performing sophisticated CT examinations previously only obtainable in the Radiology Department. This new capability provides an alternate pathway for NHB patients to receive vital CT services, effectively doubling the hospital's capacity, and establishing a secondary CT scanner for use when the primary CT scanner is out of commission.



Naval Hospital Bremerton's lead Nuclear Medicine technician Hospital Corpsman 1st Class Vincent Kucera explains the new state-of-the-art imaging technology to other staff members after the ribbon cutting ceremony on April 17. The new state of the art equipment combines single photon emission computer tomography (SPECT) and computer tomography (CT) and an independent fully diagnostic CT scanner to enhance patient centered care by being able to digitally superimpose nuclear medicine and CT images to allow for precise anatomic localization of disease processes (Photo by Douglas H Stutz, Naval Hospital Bremerton Public Affairs).

Equally beneficial is the ability to digitally superimpose nuclear medicine and CT images to allow precise anatomic localization of disease processes. The net result is a rapid and accurate diagnosis of the patient's ailment followed by a tailored treatment plan and expedited return to wellness.

According to Nuclear Medicine technologist Hospital Corpsman 1<sup>st</sup> Class John Ulanday, the addition of the new SPECT/CT unit makes the NHB clinic unique in the Puget Sound area. "This is completely state-of-the-art. This new unit gives us the opportunity to use improved software and hardware and provide a much more in-depth and specific diagnosis in order to help our patients," said Ulanday.

For those not familiar with Nuclear Medicine, Ulanday explained that the clinic is part of NHB's Radiology Department and performs diagnostic imaging along with therapy procedures for inpatients and outpatients.

"We have distinct types of patients with unique needs referred to our clinic. Active duty personnel frequently require bone scans to evaluate injuries resulting from the wear and tear associated with deployments or life onboard a ship or submarine. Older patients, including our retiree population, often require myocardial perfusion imaging (MPI), which is a procedure that shows how well the blood flows through their heart muscle," said Ulanday.

"As a nuclear medicine technologist, my job is to operate and maintain our equipment that is used to localize and trace the movement of radioactive isotopes throughout a patient's body. We also assist in preparing and administering radioactive isotope treatments designed to detect and treat disease," said Ulanday, an Omaha, Neb. native.

The new SPECT/CT unit and modifications to the configuration of the clinic required the dedication, drive and determination of a number of NHB staff members from various directorates and departments. Although existing staff will require special cross training under the direction of NHB's lead Nuclear Medicine technologist, Hospital Corpsman 1<sup>st</sup> Class Vincent Kucera, and lead CT technologist, Scott McGibbon, no new employees are needed to operate the sophisticated piece of equipment.

"I thank everyone who helped make this happen. This reopening is a culmination of countless hours of effort on behalf of many," shared Cmdr. Mark M. Morton, Radiologist and Radiology department head, citing Gary Crist of NHB's Facilities Management, Cmdr. David Hardy, director of Clinical Support Services, Lt. Cmdr. Afshin Afarin, CT Imaging section head, McGibbon, Puryear, Kucera and the rest of the nuclear medicine technologists for their involvement for making the project – three years in the making – come to fruition.

"This is a major accomplishment due to a lot of work that went into this project," said Capt. Christopher Quarles, NHB commanding officer.

Hospital Corpsman 3<sup>rd</sup> Class Garrett Masters, Nuclear Medicine technologist, attests that the improvements in the clinic have already drawn rave reviews from patients.

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“We had one patient say he was mesmerized by the new equipment and how much more open and organized we look. Another patient said we had completely transformed our clinic into something beautiful and she was fascinated by the change,” said Masters, a Toledo, Wash. native, adding that as a technologist, being able to offer a modality with both the SPECT and CT imagery means they can pinpoint to the nearest millimeter any medical concern ranging from a stress fracture to a tumor.

NHB averages approximately three patients per day in the Nuclear Medicine Clinic. The new SPECT/CT unit will be used to provide images of organs and areas of the body not obtainable with a standard X-ray unit. Nuclear Medicine is particularly effective in locating abnormal tissue growths, such as tumors. After a SPECT/CT scan is completed on a patient, a radiologist then reviews the images to diagnose and guide the treatment of the injury and/or disease process.

“The SPECT/CT unit can combine two different types of images into one and this combination aids physicians in making treatment decisions. We can use it as a gamma camera, as a standalone CT, or combine the two. The unit it replaced was just a gamma camera that did not have the capability to use CT to enhance the image for localization or to be used as a standalone CT,” added Puryear, also noting that the previous unit was several years beyond its life span and was due for replacement. Additionally, with the rapid pace of technology advancements the new unit has a quicker acquisition time which reduces the amount of time a patient has to lay still on the table.

Along with providing a picture of an organ’s structure, Nuclear Medicine imaging can also show how well a particular organ is functioning. Or not. If an organ is diseased or not functioning normally, it will appear different relative to a healthy organ. Nuclear Medicine is especially valuable in detecting and diagnosing a problem or disease in the early stages.

“Nuclear Medicine provides physiological or functional information whereas CT and X-ray evaluate anatomical structures. Nuclear medicine can detect subtle abnormalities like stress fractures, that an x-ray can’t show because the images produced by this SPECT/CT are more sensitive and more specific,” explained Ulanday.

“Both nuclear medicine technologists and radiology technologists will be trained to operate the new SPECT/CT scanner. The key difference is that the nuclear medicine technologists will be trained to use both the gamma camera and CT capabilities of the unit but the radiology technologists will only receive training on the CT aspects,” Puryear said.

According to Puryear, one of the added benefits of the new Siemens Symbia T16 unit is that it is currently the only SPECT/CT scanner on the market that can also be used as a fully diagnostic standalone CT. This gives NHB a redundant CT scanner for patient care when the primary CT scanner is not available due to maintenance or repair.

“No longer will we have to send patients out in town when the Radiology Department’s primary CT is not operational. We can simply transport them to the Nuclear Medicine clinic and perform the study,” stated Puryear.



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